

CHAPTER 74-06-03 MUSTARD

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74-06-03-01. Class and subclasses. The one class of mustard is the seed of yellow (*Brassica hirta*) or oriental or brown mustard (*Brassica juncea*) which, before the removal of dockage, contains at least fifty percent of these mustard seeds, and not more than ten percent of grains officially graded under the United States Grain Standards Act. The class is divided into four subclasses:

1. **Yellow.** Any variety of *Brassica hirta* but not in excess of five percent of brown or oriental mustard, singly or combined, after dockage removal.
2. **Oriental.** Any variety of *Brassica juncea* having yellowish seeds, but not in excess of five percent yellow or brown mustard seeds, singly or combined, after dockage removal. Oriental mustard may contain up to five percent seed having brown seedcoats due to staining or weathering.
3. **Brown.** Any variety of *Brassica juncea* having brown seeds, but not in excess of five percent yellow or oriental seeds, singly or combined, after dockage removal.
4. **Mixed.** Any mixture of mustard containing less than ninety-five percent yellow, oriental, or brown, and more than five percent of one subclass or combination of subclasses, after dockage has been removed.

History: Effective May 1, 1980.

General Authority: NDCC 4-09.1-02

Law Implemented: NDCC 4-09.1-02

74-06-03-02. Terminology and definitions. Terminology used in the "Official United States Standards for Grain", FGIS, USDA, Stock No. 001-016-00104-7 is used as appropriate in these mustard standards to facilitate communication; and equipment used by FGIS is used as possible.

1. "Broken seeds" refers to broken, but sound, mustard seeds of any size (or with any portion of seedcoat removed) not removed in the proper determination of dockage.

2. "Damaged seeds" includes seeds, except heat damaged seeds, that are shrunken or shriveled as result of frost damage, discolored from excessive weathering that has penetrated the seedcoat, heavily blotched, distinctly green or heated as interpreted from the crushing test, or otherwise distinctly damaged.
3. "Distinctly green seeds" refers to seeds having a vivid green color throughout the embryo as observed and recorded after the crushing test.
4. "Dockage" refers to all matter removed from the sample using the required standard method of dockage determination. Dockage is reported in percent and added to and made a part of the grade designation after subclass.
5. "Foreign material other than dockage" is all material other than mustard seed of the four subclasses after the removal of dockage (includes weed seeds, other grains, earth pellets or stones, sclerotia, "trash", etc.). This total foreign material is composed of:
 - a. A combination of seeds of cockle (*Lychnis* spp.), wild mustard (*Brassica kaber*), and rapeseed (*Brassica campestris* and *B. napus*);
 - b. Other weed seeds than those in subdivision a; and
 - c. All matter other than mustard or weed seeds of subdivisions a and b.
6. "Heat damaged seeds" refers to whole or broken mustard seeds which are discolored light tan to charcoal black by excessive respiration or any other heating or drying process and have a distinct burnt odor after crushing.
7. "Moisture percentage" refers to moisture percentage of the seed sample prior to dockage removal.
8. "N.D." in the grade designation refers to North Dakota.
9. "Odor" of mustard seed of any of the four subclasses should be the natural odor associated with sound seed, and applied favorably to the numerical grades 1 to 4. Any lot of mustard seed having a musty, sour, or otherwise objectionable odor will be graded North Dakota sample grade on account of "odor".
10. "Purity" refers to total percentage of the subclasses yellow, oriental, or brown, and to mixed mustard on basis of percentage of mustard seeds required to qualify for the mustard class.

11. "Sound seed" refers to whole or broken mustard seed not damaged by heat, sprout, frost, fungi, or otherwise damaged, or which do not appear distinctly green in the "crush" tests. The presence and percentage of distinctly green seeds and heat damaged seeds of mustard will be determined, by crushing with a roller, on a minimum of five strips of one hundred mustard seeds each. The determination will be made on clean seed after dockage removal.

History: Effective May 1, 1980.

General Authority: NDCC 4-09.1-02

Law Implemented: NDCC 4-09.1-02

74-06-03-03. Samples - Grading and moisture. The representative sample for grading North Dakota mustard will be taken with official probe as required by federal grain inspection service, e.g., ten probes per railcar, or by approved automatic samplers properly installed in grain elevators or terminals, or other approved methods. Grades applied to submitted samples will apply only to the sample submitted, and it will be the responsibility of the sampler to secure a representative sample. Samples for moisture determination will be stored and transported in plastic bags or other airtight containers until official moisture can be determined. Moisture percentages will be adjusted for temperature as specified by federal grain inspection service.

History: Effective May 1, 1980.

General Authority: NDCC 4-09.1-02

Law Implemented: NDCC 4-09.1-02

74-06-03-04. Moisture determination. Percentage of moisture shall be determined on the mustard seed sample prior to removal of dockage by the air oven or equivalent instrument or equipment and recorded on the certificate.

History: Effective May 1, 1980.

General Authority: NDCC 4-09.1-02

Law Implemented: NDCC 4-09.1-02

74-06-03-05. Dockage determination. Dockage determination will be via Carter dockage tester. A minimum of one thousand grams will be used. The riddle and sieve arrangements will be: Feed on #3, for yellow and #2 feed for oriental and brown, air on #7, the 000 riddle, #10 sieve in top sieve carriage, and #11 sieve in middle.

All material, including mustard seeds and unthreshed pods, removed by air, and all material passing over the riddle and the #10 sieve are dockage. All material passing through the bottom #11 sieve will be reclaimed using a 6x21-inch wire sieve for brown and oriental mustard. Material remaining on top of the hand sieve will be placed back in the dockage-free mustard for grading. The fifty percent rule will apply to all material passing through the hand sieve, that is, if this material is fifty percent or more mustard it is returned to the mustard sample for grading, but if it is less than fifty percent mustard by weight it is placed in dockage and weighted and

calculated with air and riddle dockage. (As the production environment or nature of mustard seed of any of the subclasses might change from year to year, the size of the reclaiming hand sieve may need to be changed. If a different sieve is used to reclaim that material passing through the bottom #11 sieve, the size and hole shape of the sieve used must be stated on the certificate.)

History: Effective May 1, 1980.

General Authority: NDCC 4-09.1-02

Law Implemented: NDCC 4-09.1-02

74-06-03-06. Numerical grading factors. All percentages are determined on weight basis except crushing tests to determine part of damage factor.

	GRADE				
					North
	North	North	North	North	Dakota
	Dakota	Dakota	Dakota	Dakota	Sample
	No. 1	No. 2	No. 3	No. 4	Grade
Minimum purity of subclass *	99.8%	99.5%	98.0%	95.0%	95.0%
Heat damaged +	0.1%	0.2%	0.5%	1.0%	**
Damage distinctly green seeds +	1.5%	1.5%	3.5%	3.5%	**
Total damaged seeds +	1.5%	3.0%	5.0%	10.0%	**
Foreign material other than dockage - Yellow:					
Cockle, wild mustard and rapeseed, singly or combined +	0.1%	0.2%	0.3%	0.7%	**
Foreign material other than dockage - Brown or Oriental:					
Cockle, wild mustard and rapeseed, singly or combined +	0.1%	0.2%	0.7%	1.0%	**
Other weed seeds +	0.3%	0.5%	0.7%	1.0%	**
Other foreign material +	0.1%	0.3%	0.6%	1.0%	**
Sclerotinia bodies +	0.1%	0.2%	0.3%	1.0%	**

+ All percentages are maximum tolerances.

* Not applicable to North Dakota mixed mustard.

** Sample grade shall be determined as that grade in which any one or more of the grading factors exceeds the maximum tolerances allowed for North Dakota No. 4, and samples having a musty, sour or objectionable odor.

Mustard containing two or more rodent pellets, bird droppings, or an equivalent quantity of other animal filth or broken glass per one thousand grams cut from the sample as a whole shall be graded as North Dakota sample grade. Mustard

containing two or more fertilizer pellets in the dockage free sample shall be graded North Dakota sample grade.

History: Effective May 1, 1980; amended effective May 1, 1988.

General Authority: NDCC 4-09.1-02

Law Implemented: NDCC 4-09.1-02

74-06-03-07. Dockage percentages. The percentage of dockage when equal to one-half percent or more shall be stated in terms of half percent, whole percent, or whole and half percent, as the case may be, with other fractions disregarded; that is, all fractions of five-tenths percent are dropped, so five-tenths to nine-tenths percent is reported as five-tenths percent, one percent to one and four-tenths percent is reported as one percent, one and five-tenths percent to one and nine-tenths percent is reported as one and five-tenths percent, etc. All other percentages will be recorded and reported to nearest one-tenth percent.

History: Effective May 1, 1980.

General Authority: NDCC 4-09.1-02

Law Implemented: NDCC 4-09.1-02

74-06-03-08. Grade designation for North Dakota mustard. The grade designation for mustard shall include in the following order:

1. The letters "N.D."
2. The number of the grade or "sample grade", the latter considered a numerical grade below No. 4.
3. The subclass of yellow, oriental, brown, or mixed.
4. Dockage percentage if any applicable.

Information determining numerical grade and subclass will be stated on the certificate.

History: Effective May 1, 1980.

General Authority: NDCC 4-09.1-02

Law Implemented: NDCC 4-09.1-02

74-06-03-09. Grading and factor analysis fees.

1. **Grade determination for official samples.**

(Form CI-1) samples taken by North Dakota state seed department authorized inspectors or samplers licensed by the federal grain inspection service.

2. **Grade determination for submitted samples.**

(Form CI-2) samples not officially taken under North Dakota state seed department supervision.

3. **Factor analysis.**

Dockage	Heat damaged seed
Distinctly green seed	Total damaged seed
Moisture	Foreign material

History: Effective May 1, 1980; amended effective May 1, 1988; December 18, 1989; September 1, 2002.

General Authority: NDCC 4-09.1-03

Law Implemented: NDCC 4-09.1-03

74-06-03-10. Sample size. The minimum sample size is one thousand grams for grading mustard. Samples of less than one thousand grams will receive factor analysis on those factors which can be done with the submitted sample size, no grade will be reported.

History: Effective May 1, 1988.

General Authority: NDCC 4-09.1-02

Law Implemented: NDCC 4-09.1-02